June 1988 The Naval Aviation Safety Review

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approach

Safety is Paramount

Anonymous

. . . but every air wing has "Buffalo Calls" to help the boarding rate.

. . . but it counts for 15 percent or less in the Battle "E'' formula for *most* communities, way less than big numbers in *every* community.

. . . but every day we hear about the need to expedite, to press, to hack it, to push; just don't take chances.

. . . but "operational necessity'' applies to many evolutions, not just actual combat or actual SAR.

. . . but in many ships and in many squadrons it is better to die than look bad at the boat.

. . . but the pilot who takes his own wave-off frequently gets the opportunity to explain his lack of "professionalism" to the ship's CO.

. . . but you can tolerate a "few'' crunches in a major respot if it gets the deck ready for an on-time first launch.

. . . but when people are injured taking shortcuts, their supervisors were usually only trying to do a better (read faster) job.

. . . but there's always more time to do the job over than to do it right the first time.

. . . but controllability gripes can be signed off "next pilot check" and A-799 if it will keep availability up.

. . . but air shows are impressive, and if there isn't one scheduled, we can always improvise.

. . . but ship safety departments are often manned by castoffs from other departments.

. . . but we all "know'' that you can't make an omelet without breaking a few eggs.

. . . but we keep doing things the way "we've always'' done them; after all, it *is* a risky business.

. . . isn't it?

inside approach

Vol. 33 No. 12

Two VF-102 F-14A Tomcats silhouetted against a setting sun.
Photo by LCdr. Parsons

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RADAR CAN'T PICK UP

STOP FOD

But YOU Can!

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Poster idea contributed by AN Jerry Pepper, VAQ 135

Don't let this be
the last thing
you see.

Poster idea contributed by AT3 Todman

STAY ALERT: STAY ALIVE!

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We Can

. . . "Full power! Full power!" Oh, my God, we're settling! We're already committed; get some airspeed! Dump fuel! . . .

Handle It

By Lt. Daniel Lynch

A RECRUITER once told me that the CV flight deck was like a ballet: precise, graceful and choreographed. It is impressive, even beautiful! Since then, I've learned that recruiters don't always tell the whole truth. He never told me about alert launches, air plan changes, trouble-shooters, last-minute fixes or downing gripes. I've never seen the director stand up in the middle of the ballet and yell, "Launch the alert pirouette!" When was the last time you saw an air plan go from start to finish as published?

Several last-minute changes occurred during a recent "dance" on the flight deck. These events affected one crew's thought processes.

"Launch the alert helo! Periscope sighted. Initial vector 170 at 20. Check in button 20." Wake up. God, I'm tired. I've been on alert in the ready room for five hours. Grab the Nav bag, life vest, helmet bag, comm bag, HEED bottle; where's the ASW brief? We'd better get going if we want to get off the deck in 15 minutes.

Off the deck in seven and on datum in 17 minutes. Piece of cake.

Four hours of fast-paced hunter-killer ASW ops later: "USS *Prey*, this is Predator 611; we're RTB. Nice beating up on you." We can handle that.

"Tower, 611, inbound for landing, state zero plus forty-five."

"Roger, cleared to land, spot 3, winds are 40 port at 4 knots." We're light; we can handle it.

Normal touchdown. Slightly forward of spot 3. No problem. Get the shutdown checklist. "611, Tower, new tasking. Logistics run to USS *Smallboy*. The air transport officer (ATO) will brief you." "611, roger." Well, that changes some things. Forget shutdown checklist. We'd better get more fuel. Four thousand pounds will do it. Let's get these windows cleaned; I can barely see through the salt spray. Get the trouble-shooters in here. Number 1 radio is tango uniform. Check out that hydraulic leak in the aux pack. Man, I'm tired. Five hours of alert followed by four hours of ASW and now this. Oh well, it all counts toward 1,000 hours. We can handle that.

"Sir, you're taking on fuel."

"Roger, taking on fuel."

"Tower, 611, radio check." Nothing, we'll have to swap out that radio. How's that leak looking? Whoa, what is the trouble-shooter doing? "I don't care if the No. 1 radio is under the collective — DON'T LIFT UP THE COLLECTIVE WITH THE ROTORS ENGAGED!" We'll have to disengage the rotor head so he can get at the radio.

"USS *Smallboy*, 611, on deck my mother at this time. Will be on top your unit in 15 minutes with two passengers and one part." Or was that two parts and one passenger? Where's the ATO? "Tower, 611, radio check."

"Loud and clear, 611." Finally! Button it up. Let's get going; we're gonna be late!

"Pilot, sonar, trouble-shooter says the leak is no problem, sir."

"Roger."

"Pilot, aft station, the ATO is handing me a piece of paper."

"Roger, bring it up here."

"Roger, sir, coming forward." OK, two passengers and one part to USS *Smallboy*. Pick up one passenger there and deliver him to USS *Boat*. I love it when a plan comes together! We can handle it.

How's the fuel doing? "Cut fuel! Cut fuel!"

"Roger, sir, fuel's cut." 5,200 pounds, I haven't done that since I was a nugget!

"611, USS *Smallboy*, say ETA." Idiot! I thought I already told him that.

"USS *Smallboy*, 611, estimating on top 10 minutes."

"USS *Smallboy*, roger." Let's slow down and think for a second.

"611, Tower, you ready to go?"

"Standby, sir!" We've got 1,200 pounds too much fuel, two passengers, one part, it's hot, density altitude is up there and winds are light. We could ask for more wind. No, then everyone will know we overfueled. Our go-no-go hover torque is 91 percent; let's check it. "Tower, 611, up and ready sir."

"Cleared to lift, winds are 40 port at 4

Max gross weight takeoffs require you to have enough deck in front of you to build up airspeed before going over the deck edge and out of ground effect.

knots." Rolling forward to check the chains off. Chains are clear, lifting. We're creeping forward. Hover torque is 91 percent — on the edge of the envelope, but good. Two aircraft commanders flying together; we can handle it.

"Full power! Full power!" Oh my God, we're settling! We're already committed; get some airspeed! Dump fuel! What's that? The tail wheel just bounced off the top of the angle! TAIL ROTOR, TAIL ROTOR, NOSE IT OVER! THE TAIL ROTOR IS GONNA HIT THE DECK! Holy tail rotor within two feet of the deck edge, Batman! Do you realize how close we came to buying the farm?

Once clear of the ship, we were able to trade off altitude for airspeed and scoop it out, but I don't ever want the tail rotor to get that close to the deck again. If it had hit, it very well could have resulted in the loss of six lives and one aircraft.

How's that for the classic chain of events leading to a mishap, or in this case a near-mishap? I've thought about this incident a lot since it happened and feel that there are important lessons to be learned by both helo and fixed-wing guys.

Performance parameters briefed at the 0700 alert brief don't apply at the 1600 launch. Get back in the charts, and when in doubt always err on the side of safety. Gee, isn't that an original thought?

Hover checks should be done in a hover. The torque required to creep forward is less than that required to hover. There's no substitute for a stable hover/power check before you transition to forward flight.

Max gross weight takeoffs require you to have enough deck in front of you to build up airspeed before going over the deck edge and out of ground effect. We gave up deck in front by landing forward of spot 3, rolling forward to check the chains off (a "may" in our NATOPS and "should" in our SOP) and creeping forward on initial takeoff. We did all three to ourselves.

Salt spray on the windows after a four-hour ASW hop, jumping from dip to dip, is probably indicative of salt encrustration on the compressor blades and a deterioration in engine power output. Do you take that into account when refiguring your performance parameters?

Hey, you fixed-wing guys can get something out of this too. You've never been tired in the cockpit, have you? Neither have I! Is judgment impaired after a night of not enough sleep followed by a five-hour alert followed by a four-hour "snakes in the cockpit" flight? At the time, I thought not, but in retrospect . . .

I'm sure this is not the first time a naval aviator has been busy in the cockpit and missed something. Don't compound whatever it was you missed by not admitting to it. Fess up and take corrective action.

The "we can handle it" syndrome (a.k.a. "can do" or "mission accomplishmentitis") has caused problems in aviation for a long time. Next time you catch yourself saying, "We can handle it," ask yourself if you'd bet your life on it? When you think about it, that's exactly what you're doing! ◄

Lt. Lynch is an IUT with HT-18, NAS Whiting Field, Fla. Formerly he was with HS-3 NAS Jacksonville, Fla.

Clear the Canopy

By LCdr. Jim Lawson

YOU'D think egress from the aircraft would be one of the safest parts of a flight. Yet, this simple activity came within millimeters of seriously injuring one of our ready-manned spare crew.

Our EA-6B was parked amid a pack of planes on cat 2. It wasn't our usual spot. An aircraft was spotted for launch on cat 1. The spare aircrew discovered a downing discrepancy and signalled the plane captain and trouble-shooters. No problem — the go bird taxied to the cat. Maintenance would have an opportunity to fix the gripe before the next launch. The signal to shut down was given. As the engines were shut down, the canopies were opened, and the pilot and left backseater (ECMO 3) began to climb out.

At this juncture, the cat officer ran toward the aircraft waving his arms signalling to hurriedly close the canopies. A quick glance at the clock showed seven minutes to launch. (Canopies of aircraft on cat 2 are to be closed for cat 1 launches.) The pilot and ECMO 3 were already on the deck and on the starboard side of the aircraft when the plane captain, in response to the cat officer, signalled ECMO 1 and 2 (front and right side back seat) to close their canopies. He was unaware that only ECMO 1 saw his signal. At the same time, the trouble-shooters waved the aircrew on to complete the egress.

The backseater was climbing out with one hand grasping inside the canopy hinge area for support, still not realizing that ECMO 1 had reseated himself and was closing the canopy. The plane captain, yelling and waving his arms, managed to attract both crewmen's attention. ECMO 2 rapidly pulled in his hand, and the frontseater reversed the canopy. The backseater said later that he could feel the pressure of the canopy on his fingers just before the canopy was reversed.

A review of the events revealed several causal factors. Though a set procedure for canopy opening and closing under normal circumstances is religiously followed, the routine became rushed and disjointed, which caused a breakdown of communication. The sequence of events was triggered by the cat officer, in his zeal for a proper launch, rushing down the deck waving his arms.

I'm sure he felt a sense of urgency and a true need to expedite things, but perhaps a more methodical passing of information would not have created such a disorderly and rushed atmosphere. As usual, more time was probably lost than gained in the confusion.

The designated plane captain must be the only person passing signals until a standard handoff is given to another qualified individual. Aircrew, trouble-shooters, plane captains and all flight deck crew need to keep this role in mind. To paraphrase the old prop adage, "Don't stick your hand in a canopy hinge and you won't get your hand crushed by a canopy." ◄

LCdr. Lawson is the Electronic Warfare Officer for VAQ-139, assigned to CVW-14 in USS *Constellation* (CV-64). He has over 3,000 flight hours and 500 traps.

Canopy Closing Incidents. There appears to be an increasing number of injuries resulting from inadvertent closing of A-6 and EA-6B canopies during ground operations. From January 1983 to October 1987, nine incidents were reported resulting in Delta injuries to two aircrewmen and seven maintenance personnel. Given the thousands of operations performed annually, this may not seem like a large number, but if you are involved in such a mishap — and especially one of those injured — nine isn't such a low number, after all.

In most of the incidents, the main contributing factor was improper, or inadequate, communication, either between the aircrew themselves or between maintenance personnel and aircrew. Case in point.

The embarked A-6 squadron's maintenance personnel regularly worked 12-hour shifts, seven days a week. The pilot and B/N had been on duty for 14 continuous hours but did not feel themselves under any undue pressure. They manned their alert bomber for a late night alert turn, gathering their flotation gear, flashlights and helmets before going out onto the flight deck. It was a windy night and the sky was overcast.

An AQ3 had made an INS alignment and radar and FLIR checks before the engine start. The left generator would not engage and there was no radar BIT video. The troubleshooters worked to change the electrical supervisory panel in the aircraft shoulder panel to try to fix the generator.

In the meantime, the AQ3 climbed the B/N's ladder to tinker with the radar until the BIT video returned. Moderate rain was now falling and the AQ3 suggested the A-6 crew "button up," and descended the ladder.

The pilot cleared both sides of the aircraft; the troubleshooters were still

on the left side working on the supervisory panel. The pilot waited for the B/N to move a mirror clear of the canopy, then closed the canopy completely.

As the B/N performed other checks, he noticed the third class signalling him from the flight deck but could not understand the nonstandard signals. The B/N asked the pilot to crack the canopy. The crew checked for the troubleshooters, opening the canopy cautiously. One of the troubleshooters began signalling to close the canopy. He was removing shoulder panel fasteners and his efforts were hindered by the crew reopening the canopy.

The AQ3 had now climbed back up the B/N's ladder, the better to discuss computer problems, and was holding onto the leading edge of the canopy. Neither the pilot nor the B/N noticed the third class hanging off the right side, and the pilot closed the canopy without calling "clear," trapping the AQ's hand.

Just as the canopy locked, the B/N saw the AQ and, shouting "Open it! Open it," reached for the canopy switch. Released from the opening clamshell, and in shock, the AQ descended the ladder to obtain first aid for his broken hand. The pilot and B/N soon joined him to ascertain his injuries.

One of the continuing problems in naval aviation — all military aviation — is that of education and communication. Maintenance personnel and aircrew need to be continually briefed and reminded of the hazards of working around aircraft. The motivated AQ wanted to do his job, but his desire to clear up the problem degraded his situational awareness.

The aircrew, sitting in their plane, closing and reopening the canopy without any problems, did not completely clear the canopy on the final cycle. No one sets out to get hurt or to cause an injury; but. . .

Education, vigilance *and* communication. Tell people; make sure they are on guard. And if you have to, tell them again.

Conflicting Approaches. Two F-4s were making a straight-in approach to an Air Force base. The wingman made a full-stop landing, while the lead entered the VFR pattern. He was instructed to report the initial for Runway 20, and was also advised of a C-12 on a nine-mile final for the same runway.

The C-12 reported the Final Approach Fix (5 DME) and received landing clearance. The F-4 reported the initial. The C-12 was then told to take it around because of FOD on the runway, and to maintain 1,500 MSL.

The Phantom reported base for a low approach and was cleared "at or above 1,000 feet, FOD on the runway." The tower then cleared the C-12 for left closed traffic at 1,500 MSL.

Things became more complicated with a C-130 on a seven-mile final. The controller planned to sequence the F-4 inside the Herk, so he cleared

AIR BREAKS

the Phantom for a closed pattern at midfield. The Phantom climbed to 2,000 MSL, the pattern altitude for tactical jets.

The pilot of the C-12, at 1,500, on a closed downwind, saw the F-4 climbing through his altitude at an estimated distance of 300 feet, and brought his Beech down to 1,200.

Sorting everything out, it was determined that the controller had *forgotten* about the C-12 in his desire to sequence the F-4 inside the C-130. Other inputs, such as mixing high- and low-speed aircraft, and men and equipment on the runway, contributed to the controller's task saturation, setting the stage for a midair and potential disaster.

The controller was suspended from working the local control position, pending a special evaluation by the chief controller. Aircrews were briefed on the importance of clearing their flight path and of the see-and-be-seen lookout doctrine.

Night Form Midair. After briefing for a night formation hop, the crews manned their TA-4Js. The instructor pilot (IP) and an instructor under training (IUT) were in one Skyhawk; the student naval aviator (SNA) was solo in the second aircraft. The SNA was briefed to fly to the operating area, rendezvous, fly formation on the lead, and fly a missed approach when they returned to the field.

The brief included detailed coverage of the missed approach, which would be flown as a section. After cleanup, the SNA would detach from the flight, call the tower and turn downwind. The lead would depart the pattern, proceed back to the area and rendezvous with a second student.

The first phase of the flight went fine, and the flight returned to the base for the missed approach. While in the area, the duty runway was changed from 13 to 17.

The flight dirtied up and received instructions for the missed approach, which included turning right, assuming a heading of 180 and climbing to 2,000 feet. The tower would eventually turn the SNA downwind.

As the SNA approached to within two miles of the field, he was told by approach control to turn right to 180 and to contact the tower. He reduced power and dropped behind his lead, who called for the missed approach. The lead advanced the power as the SNA continued to drop farther behind. After his gear was raised and the flaps retracted, the student began to close on the lead. At this time, the flight lead called for the student to detach unaware he already had.

The student had looked inside to monitor his airspeed, and when he again looked outside, he realized he was dangerously close to the lead and pushed forward on the stick. However, the two aircraft collided, the SNA's canopy striking the lead's tail cone.

The IP felt a thump and saw the SNA's aircraft below him. Communications between the IP and SNA followed to determine damage and the student's condition and a course of action. As the student approached the runway, he lowered his flaps and reported his gear down. He got a flashing wheels light that went out as he advanced power above 92 percent. In his mind, the student saw a three-down-and-locked indication. He landed on the fuel tanks with his gear up and locked. He had, in fact, never lowered them. There was a brief flash from the residual fuel in the tanks. The IP, seeing this transpire, called for the tower to get the crash trucks out.

There are many lessons to be learned from this incident, not the least of which is the value of checklists — especially at night — and the necessity of making sure you really complete the landing checklist. The IP and tower reminded the student to lower his gear and flaps. The student confirmed the gear down, not noticing he had a warning light and the gear handle was in the up position. Thus, he landed with the gear up and the flaps and hook down.

The controller's instructions, the switch of duty runways and the heightened excitement after a midair all served to add to this student pilot's confusion. There is still no excuse for failing to complete a checklist. — Ed.

Fuel Leak in a Turkey. Following a catapult launch, an F-14 pilot noted a left fuel pressure caution light illuminate, with no other cockpit indications. Four minutes later, he selected wing/external transfer switch to auto from off. After confirming external fuel was transferring, the pilot noted the fuselage/feed tapes were still rapidly decreasing.

Correctly assuming a fuel leak, he checked that the dump switch was off, pulled the fuel feed/dump circuit breaker and requested an emergency pull forward for an immediate recovery aboard the ship. Although the F-14 launched with 20,000 pounds total fuel, nine minutes after takeoff, there were 14,000 pounds remaining.

The LSO confirmed a massive fuel leak as the Tomcat came into view approximately five miles from the carrier. Following the arrestment, the aircraft continued losing fuel from the bottom of the left engine, aft of the MXU. The crew secured both engines and exited the aircraft. Total fuel on board was now only 7,000 pounds.

Postflight inspection revealed the left engine's main motive flow fuel outlet hose had separated from the bulkhead-mounted elbow joint, allowing fuel to be pumped into the engine bay. ◄

Seconds to Impact

By Maj. John A. LeMoine, USMC

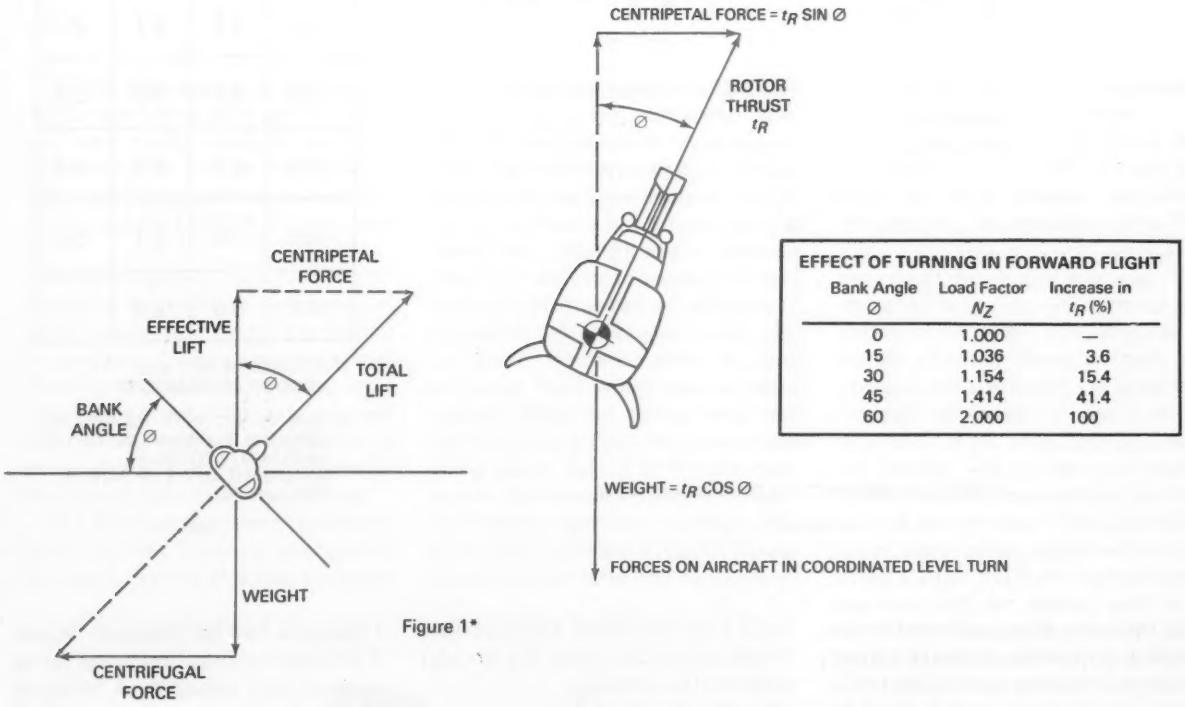
Graphics by Frank L. Smith

TWO recent class A mishaps indicate a need to review some basic physics. Whenever an object is acted upon by an unbalanced force, that object will accelerate in the direction of the applied force. We see this represented by the equation: F = Ma. Let's examine the two mishaps in question.

The first involves an A-6E on takeoff from an East Coast NAS. After liftoff the pilot raised the gear and flaps and continued to accelerate to 250 knots while maintaining an altitude of 100 feet. At the upwind end of the runway, the nose was raised 5 to 10 degrees, and the aircraft was "smartly" rolled to 60-70 degrees angle of bank. The aircraft climbed to approximately 200 feet before the nose fell and the aircraft started to descend. Just prior to ground impact, both crewmen tried to eject but were unsuccessful. The aircraft's weight at the time of the mishap was 49,000 pounds, and it was configured with drop-tanks.

The second mishap involved a CH-53E entering the break to land at Desert Southwest. The pilot at the controls (PAC) in the left seat initiated the cross cockpit, right break maneuver from 300 feet AGL by rolling the helicopter to 60 degrees angle of bank. The PAC did not feel comfortable with the maneuver and attempted to have the PIC take control. The aircraft never rolled out of the maneuver and impacted the ground. The copilot survived while four aircrew died in the crash and ensuing fire. The helicopter's gross weight at the time was 44,500 pounds.

In these cases, two totally different aircraft followed the same basic law of physics. Figure 1 is a vector diagram that illustrates the point. In order to maintain altitude, "effective lift" (the



EFFECT OF TURNING IN FORWARD FLIGHT

Bank Angle Ø	Load Factor N_Z	Increase in t_R (%)
0	1.000	—
15	1.036	3.6
30	1.154	15.4
45	1.414	41.4
60	2.000	100

Figure 1*

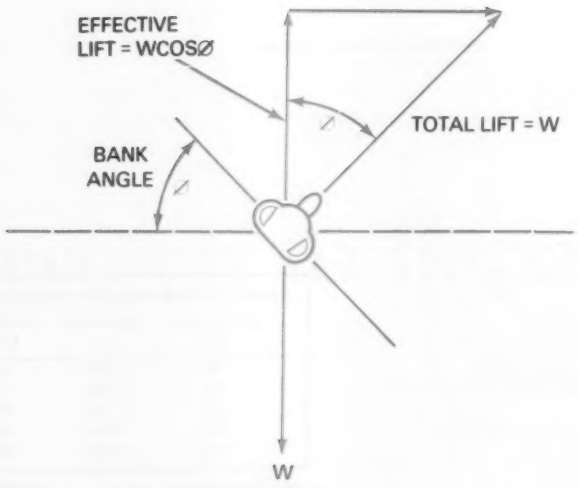
*Figure 1, Figure 2 and Table 1 are taken from "Dynamics of Helicopter Flight" by George H. Saunders 1975 and "Flight Theory and Aerodynamics" by Charles E. Dole 1981.

vertical component of total lift) must be equal to weight. If weight is greater than effective lift, an unbalanced force will exist, and the aircraft will accelerate toward the ground. If effective lift is greater than weight, the opposite will occur. This explanation is greatly simplified, but you get the point. When an aircraft is operated at any angle of bank and the pilot desires to maintain altitude, the aircraft's wings or rotor system must produce a total lift force that is greater than the weight of the aircraft. This is necessary because the total lift acts perpendicular to the wing or tip path plane, and only the vertical component of the total lift will be available to counter the weight. The remaining horizontal component is used to provide the centripetal force that causes the aircraft to turn. If total lift is not increased but remains equal to the weight in a banked maneuver, then its vertical component will be less than the weight, and a net downward force will exist. Here's where our physical law comes into play. If the pilot does nothing to increase the total lift of the wing or rotor while in the banked maneuver, the aircraft will accelerate in the direction of the unbalanced force: *toward the ground!*

Recalculation of the performance requirements of both aircraft indicates they had the capability of performing the desired maneuvers. However, we know the maneuvers were not completed. Why? Both investigations revealed that the pilots in command may have been distracted at a critical point in the maneuver.

In the case of the A-6E, the pilot seems to have been distracted by an unsafe gear indication shortly after commencing the high angle of bank climbout. Instead of continuing to fly the aircraft, he became overly concerned with exceeding the landing gear speed of 200 knots and retarded the throttles to 70 percent. At this point the aircraft stalled or did not have the energy to sustain the 2-3 Gs required to maintain altitude in a 60-70 degree angle-of-bank turn.

The pilot at the controls of the CH-53E was a first-tour copilot performing a low-altitude, high angle-of-bank maneuver for the first time. When he commenced the maneuver, it appears the pilot in command was distracted by the tower's call of conflicting traffic. Instead of monitoring the progress of



FORCES ON AIRCRAFT IN A DESCENDING TURN

Figure 2

	BANK ANGLES		
	60°	70°	80°
S	*t*	*t*	*t*
100	*3.5*	*3.1*	*2.7*
200	*5.0*	*4.3*	*3.9*
300	*6.1*	*5.3*	*4.7*
400	*7.0*	*6.1*	*5.5*
500	*8.0*	*6.9*	*6.1*

S=ALTITUDE IN FEET AGL AT START OF MANEUVER

t=TIME IN SECONDS TO GROUND IMPACT IF G LOADING NEEDED TO MAINTAIN ALTITUDE AT MANEUVER ANGLE OF BANK IS NOT APPLIED

Table 1

the maneuver being performed by the copilot, the pilot in command appears to have been searching for the traffic. The copilot never applied the 2 Gs required to perform the level turn at 60-degree angle-of-bank, and the aircraft descended to ground impact.

Let's analyze what happens. To make the analysis easy, we will only examine the vertical direction and make the following assumptions:

1. The pilot is distracted and does not apply the required load factor to maintain altitude.

2. The center of gravity motion is the aircraft motion.

3. Our coordinate system will assume down is positive.

Figure 2 shows that the forces acting in the vertical plane are the weight and effective lift. A little trigonometry proves that the effective lift is equai to the total lift multiplied by the cosine of the angle of bank. The sum of forces acting in the vertical plane is (W - Wcosϕ). The mass of the aircraft equals the weight divided by 32.2 feet per second. Applying these results to Newton's second law (F = Ma) produces the following:

$(W - W\cos\phi) = W/32.2 \times a$

Solving for the acceleration in the vertical plane yields:

$32.2\,(1 - \cos\phi) = a$

At this point we need to apply assumption No. 2. Using it we can calculate the time an object will fall by the following relationship:

$S = 1/2at^2$

Where S is the distance to fall (altitude AGL at the start of the maneuver). Substituting for acceleration gives:

$S = 1/2[32.2(1 - \cos\phi)]t^2$

Rearranging this relationship so we can solve for time in seconds produces:

$t = S/16.1(1 - \cos\phi)$

Using this relationship we can construct Table 1. If S is altitude in feet, then t is seconds to ground impact after starting the maneuver.

Low-altitude maneuvering is a very demanding flight regime requiring full concentration on the task at hand. Table 1 illustrates how fast things can happen if you lose situtational awareness during a low-altitude maneuver. A 60-degree angle-of-bank maneuver started at 100 feet will result in ground impact in less than four seconds if the appropriate G load is not applied. If we take our attention from the task at hand, precious little time will be available to compensate for an error by the time we refocus our attention to the task. Even then the forces required to arrest the descent rate may exceed the capability of the aircraft or rotor system.

Knowing your aircraft, yourself and your crew, and maintaining a keen awareness of the laws governing maneuvering performance are key elements in maintaining situational awareness. The low-altitude flight environment is no place for showmanship, complacency or task oversaturation. Planning and crew coordination are absolute necessities. *Know what's important — fly the aircraft first.* There is not enough time for anything else.

Maj. LeMoine is a helicopter pilot with 2,000 hours in H-46s. He holds a master's degree in aeronautical engineering from the Naval Postgraduate School.

Am I Really Well Enough to Fly?

By Lt. Jerry Cook

WE'VE all heard the lectures about stress and naval aviation, but have you ever really thought about it? Have you ever known anyone who had experienced a stress-related incident or medical problem? If not, read on.

It was a beautiful day at NAS Northwest; the weather was clear and visibility was unrestricted — a great day to go flying. I came into work that morning and noticed an empty seat on the only event of the day. I had not flown in two weeks and was about to go out of qual, so to avoid having to fly the trainer, I decided to bag a hop.

I felt fine, but the stress I had been under for the previous two weeks had taken its toll and was patiently waiting for its chance to strike. Two weeks prior to the day of the flight, my wife had given birth to our second child, two months premature. As per Murphy's Law, I was away on a det at the time. After a quick flight back to home base, I found that she had been taken by medevac to another military hospital 150 miles away. No big deal, but when the child was 5 days old, we were informed that he was seriously ill and would require major surgery. Now the stress level was really climbing. Our oldest child was being taken care of by friends back home, which required frequent three-hour drives each way. Living in the local lodge, eating at irregular hours, sleeping when time was available — all contributed to my heightened stress level. Back to the flight.

Because it was a beautiful day (unusual for that time of year) we filed for back-to-back low-levels through the Cascade Mountains. The flight was uneventful until we neared the end of the second low-level. The route we were on ran right up the middle of the range, providing a lot of terrain masking. Being normal, aggressive naval aviators, we were taking full advantage of the training available. In the back, though, I was not feeling well. Stress and fatigue combined and I experienced my first case of airsickness. I had flown this route many times before with no ill effects. After the flight I went home but was still not feeling well — a slight tightness of the chest, like you get after being scared out of your wits — I related it to anxiety over being airsick.

After about two hours with no improvement, I noticed that my heartbeat was rapid and irregular. At this point I owned up to the problem and went to see the flight surgeon. I was diagnosed as having a case of atrial fibrillation. After multiple tests and checkups, this episode was determined to be *stress*-related and not an organic physical problem. I was returned to flight status with a waiver.

Stress can sneak up on you and strike at the worst possible moment. If you have been under a great deal of stress lately, take a good hard look at yourself and ask: am I really well enough to fly? ◄

Lt. Cook is assigned to VAQ-137, an EA-6B squadron at NAS Whidbey Island, Wash.

. . . For the first time in my naval career, those endless preflight briefs saved not only an aircraft, but my life. . .

Why the Complete Brief?

By LCdr. Joseph E. Belinski

I HAVE safely progressed through my flying career by a combination of intelligence, sheer determination and at times, divine intervention. Along the way, I have been tempted to take *short cuts* that I knew would save time and effort.

But since I'm the average naval aviator, who has had the necessity of a good brief hammered into his thick skull during his formative years, I always go through each item on the checklist. Maybe the reasons for covering each item for every flight were not always clear, but all items were discussed.

The events of a recent flight changed my feelings and convinced me that checklists are not only required as SOP but are vital for staying alive.

The brief for this particular flight could have been really short. It was an area familiarization hop for one of the pilots just returning from deployment. We had never flown together, but it should have been the easiest of missions. Because department heads have to set good examples, the brief was thorough and complete. We covered everything from SAR to instrument approaches to a description of procedures for each type of emergency.

The weather was cooperative (CAVU). The first part of the flight was pure pleasure: sightseeing for both of us and the kind of "work" that makes you glad to be a naval aviator.

As we transitioned to our northern operating area, we spotted a capsized sailboat in one of the major rivers near NAS Home Field. No problem — I circled overhead and called tower for Coast Guard assistance. A rescue boat was to be sent for the amateur sailors. We then flew rescue approaches to the boat crew every 10 minutes to see if they needed any immediate help. Thank goodness we covered rescue approaches during the brief. The sailors were clinging to their sailboat, trying to right themselves. They appeared all right.

After 30 minutes NAS Home Field confirmed that a rescue craft was on the way and asked us to continue orbiting overhead. A line of summer thunderstorms had formed 10 miles to the west of both the field and the boaters. We radioed tower our intentions to remain with our wet buddies and go in for the rescue if the Coast Guard boat didn't get there before the storm did. After 15 minutes, we sighted the rescue boat, flew close aboard and directed them to the wet sailors. When the rescue boat arrived on station, we called the NAS, gave them that information and requested current weather.

The weather deteriorated rapidly and we began the trek home to beat the lightning, downdrafts, rain and other bad stuff associated with thunderstorms. About five nm from home base a huge downpour began. We went IMC.

The tower cleared us special VFR. Special VFR? We couldn't even see the nose of the aircraft. We reported that and were told to proceed on the TACAN radial. We commenced our turn on instruments and after turning 90 degrees lost our DME.

We advised approach of our lost TACAN and requested a PAR. We received our initial vector and began a climb to clear us out of the traffic area.

Approach called us back one minute later and reported that home field PAR was tango uniform. We headed to a more easterly field, one clear of rain. It was not home base, but still terra firma. I began trouble-shooting the TACAN and once again the last technique — the size 9½ swift boot kick — got the DME going. One more call was made to approach, who approved our request to shoot the RWYTACAN approach.

We picked up the 10 DME arc and began our approach. However, Home Field had fixed some of their own problems and could give us an ASR. We jumped at that opportunity, returned to Home Field, completed the landing checks and started the approach still IMC. On final, with the field in sight, we felt better. However, the rain was still messing with our avionics. We lost our ability to transmit on either radio. But, a heads-up controller handed us over to tower, which in turn provided broadcasts in the blind. Receiving their transmission, we landed and returned to our line. It had been an eventful flight.

A rescue wasn't foremost in our minds as we began our flight. Later, during the IMC portion of our flight, the heavy rain plagued our avionics equipment and made things a little tense in the cockpit. However, I felt both relieved and enlightened when we walked into maintenance control that afternoon. Relieved, because we had returned safely to our hangar. Enlightened, because for the first time in my naval

career, those endless preflight briefs saved not only an aircraft, but my life.

The area fam flight had turned into a rescue mission and degenerated into an IFR flight with degraded radio equipment. Either mission could have resulted in an aircraft mishap. However, both scenarios had been covered in the brief. The cockpit coordination between the two guys who had never flown before kept us airborne and alive. Am I a true believer in the complete brief? You bet!

LCdr. Belenski was maintenance officer for HSL-32, NAS Norfolk, Va., where he flew LAMPS H-2 Seasprites. He is with the U.S. Naval Academy as part of a special CNO project in support of the Egyptian Naval School.

. . . The weather deteriorated rapidly, and we began the trek home to beat the lightning, downdrafts, rain and other bad stuff associated with thunderstorms. . .

All-Weather Carrier Ops

Fog and low ceiling forced the carrier to conduct continuous Case III recoveries. This made it harder for pilots to obtain their night quals, causing a certain amount of tension, unhappiness and heartburn. To ease the pain and expedite the qual rate, a significant portion of CQ was done below — sometimes well below —minimums.

LSO NATOPS under Section 6.2.2 para 10 states: "CQ shall normally be conducted with a minimum of 1000-3 'waiverable' to 700-3 by the OTC." CQ was conducted below mins with several aircraft waving off "CLARA" after CCA/Mode II drop-off at three-quarters of a mile.

Numerous players, including CAG, tried to get CQ cancelled or postponed, but "operational necessity" overcame prudence. As expected, the air wing's performance was poor with low boarding rates and grades, not to mention the LSO's new crop of gray hair.

What happened to the checks in our system? Wouldn't it have been better to wait for improved weather? The whole operation was a clear violation.

Foulweathermouse

It is extremely difficult to justify such peacetime operations under the aegis of "operational necessity." — Ed.

Let Anymouse Know. We encourage you to write Anymouse whenever you see "a mishap about to happen." If you know of a hair-raising situation in the air or on the deck, let Anymouse know about it. You may help someone else avoid an unsafe incident.

Anymouse is a unique department in Approach where no names are used. All information is anonymous. In fact, Anymouse was born three decades ago when someone couldn't spell "anonymous" and signed his letter "anymouse." Thus, a mouse wearing flight gear has become a worldwide naval aviation safety symbol.

Over the years we have found it is often more prudent and speedy to report unsafe situations anonymously. Keep in mind, though, that Anymouse is not interested in personality conflicts or non-constructive criticism of individuals. All views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

For your convenience, postpaid Anymouse mailing forms are available in most ready rooms and from most flight safety officers. Use of the form is not mandatory, though. Just jot down your thoughts and mail to Anymouse, Approach Magazine, Naval Safety Center, NAS Norfolk, VA 23511-5796.

ANYMOUSE

NAVAID/COMM Mixup

En route to the CV for CQ, the aircrew dialed the ship's assigned TACAN channel and got a lock-on approximately 120 nm away. At 80 nm, they tried to contact strike but received no response. At 50 nm, they switched to marshal control and were given marshal instructions. Marshal was weak but readable, and the aircrew had good comms with company aircraft in the marshal stack.

After marshaling in one of the three stacks, the aircrew called "established" and were given a push time. After they called "commencing," there was no response from marshal or any comms on either of the approach frequencies.

Although the crew had clear comms with company aircraft, there were no communications on any ship frequency. They elected to squawk 7700/7600 and continue the approach. At approximately one mile, they realized they had executed a lost-comm, self-contained CV-1 approach to the back end of a frigate that had the same TACAN channel as the CV.

Meanwhile, 180 nm to the north, CATCC had become concerned because the aircraft hadn't appeared on their radar, and there were no voice comms. The aircrew realized the problem, climbed and reestablished comms with the CV.

The frigate had been assigned the CV TACAN channel but for a different theater of operations that would not take effect for a few weeks. Aside from weak comms with the CV, the aircrew had no indication that anything was grossly abnormal. This incident contained all the ingredients for a mishap. Luckily, the only thing they suffered was a mild case of embarrassment.

Feilthroughthecrackmouse

Smoke-Filled Hercules

Our squadron flies C-130 aircraft that carry cargo and fuselage tanks. During flights we smoke on the aircraft.

I think there are regulations prohibiting smoking on the plane with hazardous cargo and fuselage tanks. What are the regulations?

Nosmokingmouse

Section 709 of OPNAVINST 3710.7M states current Navy policy on smoking aboard naval aircraft. Among specific restrictions are during takeoff and landing, all ground operations, fueling operations including jettisoning and many others. This section also prohibits smoking in the bomb bay, fuselage or hull compartments with fuel tanks; also, in the cabin with flammable or explosive cargo. In aircraft where fuselage, hull or internal tanks are installed, smoking is banned in adjacent compartments, except when all doors and ports of these compartments are secured. All hands should be familiar with and adhere to these directives. — LCdr. John R. Wilhelm, Jr., Aircraft Operations Division, Naval Safety Center.

Flight Line Safety

Walking to the flight line, I was almost struck by a car. The driver didn't even slow down after entering the gate. The hangar parking lot has become a danger to all aircraft maintenance personnel and flight crews.

Not only is the parking lot a serious safety hazard, it's also a FOD hazard. Vehicles entering the flight line are supposed to have FOD-free tires and a visual check of tires to ensure that no FOD is taken onto the flight line area.

Perhaps you have a similar safety problem at your base.

Carsafetymouse

Fuel Bath

While the maintenance crew was disconnecting the defuel rig from the starboard engine to reconnect the main fuel line, the pilot boarded the aircraft without advising the maintenance crew and turned on the engine fuel master switch, resulting in two of the maintenance crew being soaked in fuel and fuel all over the flight line.

This can be prevented by keeping the aircrew away from the aircraft until maintenance is completed.

Burningmouse

AMS3 M.D. Howell

"God, how I love gunning the new guy's brains out," our second-tour pilot screams over the Tomcat's ICS. "Let's set up one more engagement before heading to marshal."

His RIO, also a new guy, keys the mike, "Yo, Mr. experienced pilot, I show us on our fuel ladder right now. Maybe we oughtta just check out with strike and save a little gas."

"That's a big negative, you. This guy's a grape, and besides, one more minute of burner won't take much gas anyhow. Besides it's gonna be a pinky trap. Trust me, I know what I'm doing."

"Hey, that was a pretty decent first move by the new guy — let's light 'em up and go for the moon."

Three minutes and 3,500 pounds of fuel later, two F-14s are

"Trust me, I know

By Lt. Mike Dunn

The Tomcat slammed onto the flight deck 30 feet aft of the 1 wire, despite two power calls from Paddles. Both low-fuel lights glowed brightly as the jet tugged to a standstill. They were aboard.

driving toward the stack.

"Go ahead and check us in first, we're just a little skosh on JP-5. We'll be back in the ready room before the roll 'em."

"99 Barbwire, Marshal, your signal is max conserve, the launch has been delayed."

"Terrific," barks our experienced hero. "This is all we need. At least we're at the bottom of the stack, and we'll be aboard first. Hope they wait on us before firing up the popcorn machine."

"What do you think about asking for a little opportunity fuel?" his rookie RIO asks.

"Naw, we'll probably push any minute now." Two more Delta 5s and our hero dumps the fighter's nose. Next stop, USS *Boat*. At four miles, his RIO is up hot mike. "I got us a hundred feet low."

"No problem, pal. This scud layer at 1,200 feet is the reason why. I'm trying to get a peek at home plate. Don't want to blow this first one. It's getting dark."

"Still showing us low at 2½ miles," the RIO comments.

"I've got good bullseye. . .this one's suitcased. I don't need a self-contained tonight."

At three-quarters of a mile, our hero is on and on.

"Roger ball, Tomcat, wave this one off. Fouled deck."

"Fouled deck! You gotta be kiddin' me," he says while adding military power to his jet and climbing back to 1,200 feet. "We were in there. What's going on down there?" His RIO makes the abeam call. Their state is tank plus one, but our hero convinces the rookie to inflate the gas total by a grand or so. "Trust me, I know what I'm doing. I don't feel like tanking tonight."

CATCC finds a hole in the marshal stack and turns the fighter in at six miles. "111, Tomcat ball, 3.9."

"Crap," our experienced pilot thinks out loud. "Now they know our real fuel state. Hope the skipper isn't watching the plat. No biggee. We're almost aboard."

"Hook skip! No way." The Tomcat climbs away from the carrier deck, turning crosswind on his second trip to the penalty box.

"111, Approach, your signal is tank. Hook up, gear up. Join 413 overhead at angels 12. You are authorized 2.5."

The cockpit is silent, except for the buzz of the environmental control system.

"Two-point five. What's the point? We'll burn more than that getting to the tanker," our hero complains. His RIO is silent, searching his scope for 413.

"Got him, 30 right at four miles. Closure is 150 knots."

"Not a problem," our veteran coolly replies.

It wasn't the most beautiful tanker rendezvous he'd flown. They joined on the A-7. The tanker was having some trouble with his buddy store. Finally, they were plugged and receiving. At 4.0, the F-14's fuel totalizer stopped moving.

"How about a few more gallons," our second-tour aviator begged.

"Let me recycle," came the Corsair's response. "I think I may be sour."

"Oh, God. This can't be happening to me. A fouled deck wave-off, a bolter and no gas."

Two more stabs at the basket. No gas. Our hero subconsciously rolled the temperature control rheostat down a couple of notches. It had somehow become very warm in the Tomcat.

Random vectors and a quick descent took our hero and his RIO to a three-mile final.

"Yeah, yeah. . .checklist complete." The experienced pilot searched his VDI for the ILS bullseye that would guide him to a good start. The fuel gauge showed plus or minus 100 pounds of 2.6 just before the ball call.

Our hero's left hand clicked the throttles to the military stop as the huge fighter touched down on the tiny deck.

"Bolter, Bolter," the LSO said. Again, it was silent in the airplane. "111, Paddles, check your hook down."

The second-tour pilot felt his heart in his throat as his eyes fell upon the hook handle. It was up. He hadn't noticed the flashing indexers on that last approach. He'd forgotten to lower the hook after tanking. The experienced fighter pilot and the new RIO completed the landing checklist just as the right fuel low light flashed, and 1.9 showed on the fuel totalizer.

The Tomcat slammed onto the flight deck 30 feet aft of the one wire, despite two power calls from Paddles. Both low-fuel lights glowed brightly as the jet was tugged to a standstill. They were aboard.

The Tomcat was parked and chained before our hero noticed his legs. They stopped shaking about half way to the ready room. His new RIO didn't say much until the two aviators entered the maintenance control spaces. The skipper was already there. The junior RIO looked up at the second-tour pilot.

"I'll let you explain it to the CO," he said. "I trust you. You know what you're doing." ◄

Lt. Dunn flies with the VF-114 Aardvarks.

what I'm doing."

. . . The TACCO prepared the crew for immediate ditching. All loose items were stowed and Imperial survival suits donned . . .

When Flying Becomes "Stranger Than Fiction"

By Lt. Kevin L. Koshiol

WE had just completed a five-hour ASW patrol in the Northern Pacific and were setting up for an 800-mile transit home. After a ready-alert launch the night before, the crew was tired and relieved to be leaving station. A routine restart of the loitered No. 1 engine and a normal three-hour transit were all that was left to complete this mission.

All initial restart indications were normal. As the fuel and ignition switch was placed "on" to relight the engine, engine RPM climbed rapidly, bypassing a normal indication of 100 percent and stabilizing in an overspeed condition of 105 percent. There were no secondary indications. In accordance with NATOPS, the restart was terminated as I directed the flight engineer to pull the emergency shutdown handle. As the handle was pulled, I knew all was not well. Fuel flow had stopped, but the prop had failed to feather with the engine RPM gauge decreasing to 80 percent.

Immediately, the flight engineer called, "Number one fails to feather." As he began executing his NATOPS fails-to-feather procedures, my copilot, who had been flying the aircraft during the restart, simultaneously slowed the aircraft to assist in feathering the prop. Procedures were completed without success, as the prop RPM decreased to only 65 percent with the airspeed a sluggish and very uncomfortable 140 KIAS. To improve controllability we increased airspeed to 180 KIAS. We took stock and discussed our predicament. It was not going to be a normal transit home.

Suddenly the aircraft yawed to the left as No. 1's RPM climbed rapidly through the 125 percent gauge limit. Immediately, the decoupler safety device decoupled the prop drive shaft from the engine. The high-pitched noise was deafening as the copilot wrestled for control of the aircraft. Again, airspeed was reduced to bring the decoupled propeller under control. At 150 KIAS, RPM was again brought to within reasonable limits at 105 percent. By this time, the off-duty flight engineer and my third pilot were in the flight station. They reviewed the NATOPS performance charts to determine the best altitude for fuel endurance. We tried to climb to the recommended altitude of 18,000 feet but could get no higher than 15,000.

Reviewing our situation, we were faced with a 780-mile transit to homeplate through imbedded thunderstorms, icing and previously experienced moderate turbulence. Performance was limited by our windmilling, pitchlocked, decoupled propeller, acting like a 1,000-pound pinwheel. Things were starting to get exciting.

Crawling along at 150 knots, like a 95,000-pound four-engined Cessna, we had plenty of time to discuss our situation as our radar operator skillfully guided us around imbedded thunderstorms. The entire cockpit team reviewed NATOPS and previous prop mishaps, challenging each other with endless "what if" situations. Although NATOPS covers three-engine landings in detail, there is no discussion of a windmilling prop landing. We discussed in great depth our perception of the correct technique. The tactical coordinator (TACCO) reviewed what had happened and our present situation. He then briefed the remaining crew members, directing them to make preparations for the worst case: ditching. Preparation paid off, as the situation changed drastically from bad to worse.

Four hundred miles from homeplate, the flight engineer noticed that the No. 1 oil quantity had started to drop. The loss was confirmed as oil was seen streaming from the engine drain mast and pooling in the tailpipe area of the engine exhaust. We helplessly watched oil quantity drop from seven gallons to near zero in five minutes. We now had a 13-foot mass whirling at 1,000 RPM, supported by a gearbox that was starved for oil. NATOPS did not cover this one.

My third pilot instructed the radio operator to move aft, clear of the prop plane of rotation, as the TACCO prepared the crew for an immediate ditching. All loose items were stowed and Imperial survival suits donned. A crossfeed was set up to remove as much of the fuel as possible from the No. 1 tank. Ditching checklists were reviewed and a squadron SAR launch requested. Our situation was becoming more complex

and unreal. We had no idea how long that prop would last without oil. We continued to review our options in hopes that the gearbox would hold together.

Thirty minutes later, we felt periodic high-pitched vibrations throughout the airframe. An hour later, a squadron aircraft and Coast Guard C-130 joined on us. The sight of them boosted morale, as they conducted a visual inspection of our aircraft, which showed no apparent structural damage. At 220 miles out, the airframe began to vibrate again, growing stronger and more frequent with each minute. Slowly our RPM gauge began to fluctuate and then dropped to zero, leaving us to judge RPM solely by sound. Moments later, the No. 1 engine chips light flickered and then came on steady as the gearbox deteriorated internally.

The airframe vibrations became more frequent and continued to increase in length and severity, making it difficult at times to read the instruments. At 100 miles from homeplate, we started a 100-foot per minute descent, maintaining constant airspeed and minimizing attitude changes. We decided on incremental flap selection starting at 45 miles, with gear down at 15 miles. This would provide for minimum attitude and airspeed changes and lessen dynamic changes on the prop.

Once we were established in the descent, the port aft observer called over the ICS that there was smoke coming from the No. 1 engine. I looked out and saw not only smoke, but paint turning brown on the No. 1 nacelle, and there was a one-inch gap growing between the spinning prop and its stationary afterbody. Moments later the No. 1 fire warning sounded accompanied by the red warning light. The No. 1 fire extinguisher was discharged, with fire warnings ceasing an eternal 30 seconds later. Five minutes later, the No. 1 fire warning sounded again with the aft observer reporting smoke and sparks pouring from the tailpipe. The fire extinguisher transfer switch was thrown, and the No. 2 fire bottle was discharged in the No. 1 engine. The fire warning ceased five seconds later. We now had no fire extinguishing capability on the port side (engines No. 1 and No. 2).

The No. 1 prop gap had increased to 3 inches, with portions of the prop control assembly visible. The airframe vibrations were steadily becoming more violent. At 40 miles, we could see the airport area but doubted that the prop would stay with us.

At 30 miles, we dropped approach flaps as planned. Seconds later, the prop gap increased to 5 inches as the prop began to wobble, tilting slightly forward and grinding against the afterbody. Sparks were flying like the Fourth of July, accompanied with severe airframe vibrations. The No. 1 fire warning sounded again. Unable to put the fire out, the flight engineer cancelled the horn, leaving the red light as a constant reminder. Suddenly, the No. 1 power lever moved violently fore and aft on the control pedestal. The airframe vibrations became extremely violent.

I looked out and saw the prop walk slowly forward, tilt

down and slightly away from the nacelle. Then in a split second it tilted further down, fell free of the engine; but instead of falling away, it straightened out and shot rapidly up into the No. 2 nacelle. The impact was intense. The aircraft was immediately thrown into a violent uncontrollable series of banking maneuvers, shuddering under the violent impact. We thought the aircraft was coming apart as the copilot and I fought to regain control of the aircraft. While this was happening the No. 2 fire warning illuminated, and No. 2 RPM rapidly decayed to 80 percent. The No. 2 emergency shutdown handle was pulled, but this prop, now severely damaged on impact, failed to feather. Again the FE performed his prop fails-to-feather procedures. Fly. . .fly. . .fly is all I could think of as I screamed at the blasted prop to stop.

Rotation eventually stopped 30 seconds later, with the prop in a stationary, but unfeathered, condition. With No. 2 stopped, the more severe vibrations also stopped, and I was able to regain a partial control. I did a quick controllability check with the aircraft responding as it normally would on a practice two-engine landing. Things had finally settled. There I was, two burning, two turning. Questions raced through my mind as to possible structural damage. What was the condition of my main mount? Would it even come down? Now established on a high three-mile final, we set up for a space shuttle approach, holding the gear until one-half mile, with the landing assured. We dropped the gear and received a good down-and-locked indication. I still did not know if my port main mount was intact. The prop or fires could easily have rendered it useless.

I established my flare holding the port main mount off as long as possible. I was relieved on touchdown to find the aircraft tracking evenly on centerline, as I applied reverse to the two remaining engines, coming to a stop with 2,500 feet remaining.

Aviate, navigate, communicate. . .drilled into our heads in flight training. No more applicable watchwords have ever been spoken. Now when it comes to telling sea stories, I can tell one that is stranger than fiction. ◄

Lt. Koshiol was a P-3 PPC with VP-6 and made deployments to the Philippines and Japan. He is now assigned to NADC, Warminster, Pa.

Slop-Time SNAFU

Anonymous

IT was a warm sunny day at MCAS Desert, as usual. We had been planning a DAS (deep air strike) for the past four days — and nights. As RACs (replacement aircrew) in the RAG, we were expected to cover every brief item as though we were WTIs (weapons and tactics instructors). In short, the brief went well. We all (eight of us in four two-plane sections) walked as planned. This was my first DAS, and I was determined to impress my instructor, who was the squadron WTI.

During my planning I reasoned that the most important factor in a multi-section DAS was making my time on target. Therefore, I did the usual working backwards to arrive at a takeoff time. So far, so good. Then I got creative and added 10 minutes for possible trouble-shooting, five minutes for "administrative delays" (whatever that was) and another 10 minutes just to make sure I wouldn't be late. I was now quite sure of myself when I told my IP our start time, which he copied down without question.

Well, we started and had no malfunctions or admin delays and, there I was, sitting at the hold short 20 minutes early with the WTI staring at me. "What now, idiot?" I asked myself. We just sat and turned for five minutes and then, when I didn't think he would sit still any longer, we launched. It always amazed me how I figured this out, but I thought if I flew up to a point alpha (50 miles away) just a little slower, maybe I could arrive more or less on time.

Well, we arrived at point A 17 minutes early. The IP finally realized how early we were and began his ranting and raving over my slop-time calculation. By now I was very tense. I had pretty much given up hope of impressing this guy. I just wanted to make my time on target. We pushed about five minutes early (after holding at cornering speed for 12 minutes) and flew a training command, 300 knot, low-level. Closer to the target, things started to pull together. We switched up the strike common frequency, and everything was happening on time. We used up enough time by this point to fly at 420 knots. The target attack went fairly well, but I lost sight of my lead pulling off.

Time out. Does anyone notice something missing from this story? At that point, I didn't. What about fuel? I had pulled off with 1,500 pounds. Our bingo was 1.7, and we had 50 miles to get home. Not too big a deal, yet. I calmly asked lead for his position, and he gave it to me. Oh, never mind, I thought, there he is right at 12 o'clock high, very high. Full power, and away I go. I should be joined and on deck well before the low fuel light comes on.

It seemed to take forever to join, and he wasn't getting bigger very fast. About this point, I noticed I was joining on a 727. Being a smart lieutenant, I said, "Lost sight, call your position." I noticed the altimeter climbing through FL 230 (the restricted area ended at 18,000 feet). I could just imagine the IP thinking, "How could he be joining on me for three minutes and then lose sight?" We finally joined up and confessed low fuel state. The RTB was uneventful. I never did confess my airliner rendezvous.

This is just an example of how self-induced stress can cause mistakes that would not normally be made and how it can cause a normally clear thinking pilot to misplace his priorities. ◄

Showing the Ropes

By Ltjg. Paul N. Dragos

MASTER chiefs in the Navy are a most unique group. They are firm yet compassionate, easy-going but efficient, and above all, they care about their troops. Behind every successful flight stands a maintenance master chief.

Being a young lieutenant j.g. in my first tour, I hadn't had much contact with E-9s and had formed no opinions. They were just "there" with the rest of squadron personnel and didn't seem any different. I had a lot to learn.

My schooling began at the end of a short detachment. All officers but myself and one other junior officer had flown home with the aircraft. That left me as officer-in-charge to walk 30 enlisted (with gear) off USS *Carrier*, have them transported to an Air Force base, loaded on a C-9 and flown home.

Being in administration, I had never worked with the maintenance master chief in our group and didn't know what to expect. I had seen him around the squadron. He was a short, round-faced man with a big smile and loud laugh. A first impression of him might be "cute," certainly unobtrusive. The night before we left, the entire squadron was working late, getting ready for docking.

0400. "Sir? Sir?"

"Huh? What?"

"Sir, are you awake?"

"Mom? Is that you?"

"No, lieutenant, it's the master chief. I've got the men mustered on No. 2 elevator, and we're loading the gear now," said a voice with a low, southern drawl.

"OK, mom-uh muster — I mean master, I'll be there in a minute."

"OK, sir."

I raised one eyelid to see the master chief standing next to my rack looking at me with a grin on that round face. "How did he get up so early?" I thought as he left the stateroom, "Everyone just got secured a few hours ago, seems like a few minutes. I wish it had been my mother. Oh well, I better get up and supervise the work. As OIC, I should be there."

0720. "Uh, lieutenant, wake up. The ship's docked. We're ready to unload now."

"Uh, mom? Oh No!"

"It's OK, sir; I'll get the men moving."

"Uh, right! Do that master chief."

"Aye aye, sir."

Again my eyelid opened to see the E-9 standing over me. There's that grin again.

0815. Finally I make it to where the unloading is going on. "How can I be so dumb?" I wondered. Sleeping through the docking — the men will never respect me now. I had to reestablish my authority.

"All right you guys," yells the master chief. "Put that stuff on the pallets for the crane to unload!" Now's my chance. "Excuse me, master chief, but I think I should give the orders around here. All right, you guys," I yelled. "Put that stuff on the pallet for the crane to unload!"

"Well said, lieutenant."

"Thank you master chief," I said with an authoritative nod. Why is he grinning?

1105. Here we are at the Air Force base, trying to check our gear on the plane. Master chief stands next to me as we watch the work being done. Two men start fooling around and knock over a box, spilling nuts and bolts all over the terminal.

I'm about to scream at them when something catches my eye. A metamorphosis is happening with the master chief. The cute little round face turns beet red. The hair stands straight up. His fists clench, and his entire body is taut and leaning forward, like a snake about to strike.

His mouth opens, and fire spews out to three feet. "All right you *&%@¢!" bellows a voice that sounds louder than humanly possible and vibrates everything in the terminal. "Get that mess cleaned up and I mean now!" The next thing I remember was the master chief's hand tapping me on the shoulder. "Uh, sir," he says (the change had reversed itself, and the cute little round face was back), "You don't have to pick up that stuff. I was yelling at the enlisted."

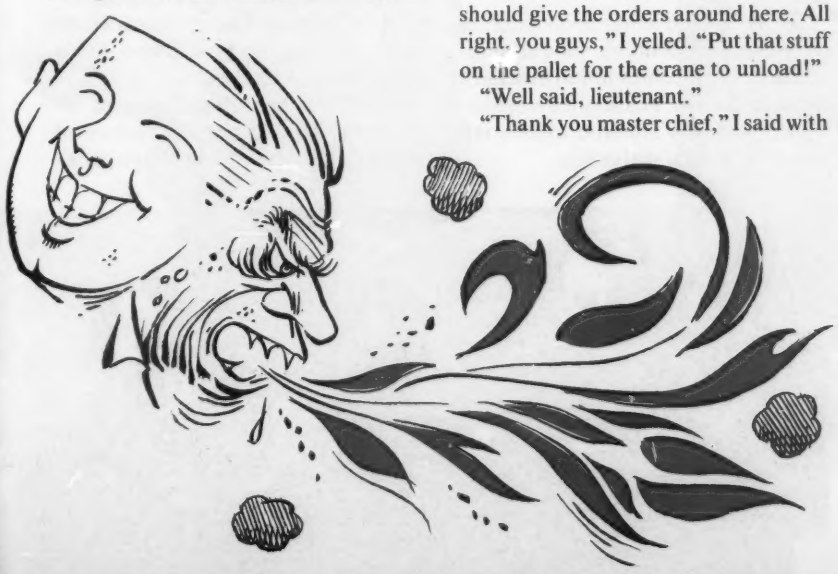
I realized that under the great verbal assault, I had been shell shocked into putting the stuff away with the rest of the shaking men. "Uh, right" I said, trying to regain composure. "I, uh, was just showing them how to do it the right way."

"Sure lieutenant," answers the master chief. He's grinning again!

The rest of the trip we had an understanding. He would tell me what he was going to have the men do and I would say "OK."

Once back safely at the squadron, master chief slapped me on the back. "You know, lieutenant" he says, "I'm pretty proud of the job I did on this trip." "Yes," I answered. "Getting this group back was quite an accomplishment."

"Oh no, sir, that's not what I'm talking about!" The grin starts. "I'm talking about all the j.g. training I did!" ◄



Ltjg. Dragos is a pilot with the HS-16 Nighthawks at NAS North Island, Calif. Special thanks to AFCM Debaun.

From left to right:
AW3 Roddy Kennedy
Lt. John Smith, Jr.
LCdr. Stephen Gardner
AW3 Rodney Harris

LCdr. Steve Gardner
Lt. John Smith
Lt. Robert MacDonald
AW3 Rodney Harris
AW3 Roddy Kennedy
HS-3

LCdr. Gardner and his crew launched from USS *Saratoga* (CV-60) for night small deck landing proficiency training on the USS *Conolly* (DD-979). The weather brief was for a low overcast with partial obscuration in haze and light winds. After the crew checked the charts in the NATOPS Manual, they determined that single-engine flight would be marginal below 40 knots and not possible in a hover, normal for an H-3, particularly with density altitude hanging in about 1,900 feet MSL. It turned out to be a totally dark night with no moon or visible horizon.

The initial launch from the carrier and first five landings by LCdr. Gardner and Lt. MacDonald were uneventful. An airborne pilot switch was made with Lt. Smith taking the right seat from Lt. MacDonald.

Lt. Smith made a satisfactory approach and his first landing. After takeoff and during transition to forward flight, LCdr. Gardner noticed the oil pressure on No. 1 engine drop to 15 psi, return to normal, then fall to zero. The torque needles fluctuated accordingly, and the engine immediately began to fail. The engine flamed out at the most critical part of the flight: before the aircraft attained single-engine flying speed and with little altitude to recover.

At the time of the engine failure, the aircraft was approximately 45 feet AGL at 20 knots. LCdr. Gardner immediately called for full power while simultaneously pushing both speed selectors to the full forward position. Upon hearing this call and observing the torque splits, Lt. Smith set a wings-level and accelerating attitude to gain airspeed in order to make a single-engine climbout.

LCdr. Gardner continued to direct the flight while Lt. Smith fought to maintain control of what was now a critical situation. In very short order, they had the problem under control and managed to coax the helicopter to 70 knots and 300 feet. They declared an emergency, and the aircraft returned to the *Saratoga* for an uneventful run-on landing with the No. 1 engine secured. The single-engine landing was an eye-opener for some air department personnel since it was the first one they had seen by an H-3.

Only the immediate application of emergency procedures, solid airmanship and crew coordination averted a serious mishap. Postflight investigation revealed a sheared axial shaft resulting in fuel starvation.

Cdr. James Langley
LCdr. Pete Wylie
AMS1 Donald Johnson
VR-60

Cdr. Langley (transport aircraft commander), LCdr. Wylie (copilot) and crew chief AMS1 Johnson were flying a Navy DC-9 on a logistics airlift out of Charleston AFB, South Carolina, with 100 passengers and a crew of six on board. Takeoff roll appeared normal from the cockpit, even though the aft cabin crew sensed an unusual noise from the No. 1 engine.

Immediately after the pilots rotated the aircraft and initiated gear retraction, the plane swerved; and the auto air conditioning shut down, accompanied by sounds of the electrical system shifting to the right side as the No.1 engine failed. The engine did not respond to the procedures on the engine failure checklist and would not restart. In spite of severe airframe vibrations, indicating possible aircraft damage, the crew successfully returned to Charleston for a single-engine landing.

Postflight inspection revealed an uncontained catastrophic failure of the No. 1 engine with multiple pene-

BRAVO ZULU

trations of the engine cowling and several engine access doors blown open. Subsequently, 30 pounds of engine debris were recovered from the runway.

Lt. Gary Kegley
VFA-136

While returning to USS *Coral Sea* (CV-43) 150 miles off the Florida coast, Lt. Kegley's F/A-18 lost electrical power. He declared an emergency, descended to VMC conditions and joined on another Hornet in marshal.

Unable to regain any generator power, Lt. Kegley operated his aircraft on the battery. Knowing his batteries would last a maximum of 20 minutes, Lt. Kegley conserved his remaining power by securing the UHF radio and IFF, retaining power to only his flight control system and his standby attitude gyro. Lt. Kegley communicated his divert intentions using his PRC-90 survival radio.

Still concerned with the power drain on his batteries and the distance to the divert field, Lt. Kegley secured electrical power to his flight controls. This put his aircraft into a mechanical control mode where differential stabilators are the only control surfaces; ailerons, flaps and rudder are inoperative. NATOPS advises that "flight in this configuration has not been demonstrated" — not even at Pax River. Lt. Kegley, the first reported pilot to fly the F/A-18 in mech only, is happy to report that his test results are encouraging. After an initial nose pitch over and some ensuing PIO, the mech mode worked fine.

After approximately 25 minutes of flight and with NAF Mayport in sight, Lt. Kegley reenergized the flight control computer with the little battery power remaining, lowered his landing gear using emergency extension procedures, and made an arrested landing.

Postflight inspection revealed an electrical fire had caused the loss of both generators.

Lt. Bob Stuart
Lt. Steve Barnes
VA-145

Lt. Barnes (B/N) and Lt. Stuart (pilot) were en route to USS *Ranger* (CV-61) from NAS Whidbey Island when their aircraft experienced a flight system hydraulic failure. After declaring an emergency, they initiated a divert to NAS Fallon. The aircraft was externally inspected by a wingman while the crew reviewed the procedures for landing with a hydraulic failure.

The weather was reported to be

Lt. Gary Kegley

Left to right:
Cdr. James Langley,
AMS1 Donald Johnson,
LCdr. Pete Wylie

Lt. Steve Barnes (left),
Lt. Bob Stuart (right).

PH3 R.P. Gallagher

1,500 overcast, with two to three miles visibility in haze and occasional snow showers.

After lowering the flaps by the alternate electrical method, the crew activated the landing gear emergency blowdown system. The nose gear came down, but both main gear remained up. After exhausting all possible options to lower the main gear, the decision was made to foam the runway and land with just the nose gear extended, using the field arresting gear. An LSO reported on station, and the crew commenced their approach.

The A-6 broke out approximately two miles from the runway in deteriorating weather. The LSO told the crew to fly a slightly high approach to ensure optimum engagement of the arresting gear. After crossing the runway threshold, Lt. Stuart sensed he had overshot the arresting gear and instinctively added power to go around as the aircraft started to touch down. The next approach resulted in a flawless field arrestment with the aircraft gently settling onto the external fuel tanks. There was minimal damage to the aircraft.

Capt. Peter Hural, USMC
Capt. Randy Bancroft, USMC
GySgt. Peter Woods, USMC
SSgt. Roger Fisk, USMC
Cpl. Jacob Enholm, USMC
Cpl. Mark Shaffner, USMC
VMGR-352

Two and one-half hours after departing MCAS El Toro, Raider 47 (a KC-130 ferry flight to Singapore for SDLM) began to develop rapid but minor vibrations in the flight controls. SSgt. Fisk (flight engineer) removed all power from the autopilot, but the vibrations continued. He then proceeded to the rear of the aircraft with Cpl. Shaffner (first mechanic) to trouble-shoot the problem.

At this time, the aircraft began shaking violently. It pitched nose up and rolled right. Capt. Hural (aircraft commander) and Capt. Bancroft (copilot) were able to counter with manual flight control inputs and regained level flight. Capt. Hural reduced airspeed and began a shallow turn toward the mainland. He descended to an altitude where 150 KIAS could be comfortably maintained. Cpl. Enholm (navigator) quickly computed a heading for the nearest land and gave GySgt. Woods (radio operator) the current position for the HF radio emergency report.

The vibrations felt like what would happen if the 20-man life raft deployed while airborne and lodged in the empennage. However, a visual inspection showed the life raft properly stowed. The empennage was still shaking violently.

SSgt. Fisk and Cpl. Shaffner continued trouble-shooting and discovered the port elevator trim tab was full down in the airstream, while the starboard tab was in the neutral position. At this point, there was no way to determine the cause of this problem.

Capt. Hural added small increments of nose-up trim in an effort to get the trim to the setting normally used for a 0-degree or 50-degree flap landing. This action also helped reduce the severity of the vibrations. The crew reviewed ditching and bailout procedures. MCAS El Toro was selected as the divert field due to its crash crew facilities.

During the flight back, the pilot and copilot traded control every 10 to 15

From left to right, GySgt. Peter Woods, SSgt. Roger Fisk, Capt. Randy Bancroft, Cpl. Jacob Enholm. Not pictured are Capt. Peter Hural and Cpl. Mark Shaffner.

minutes due to the fatigue of maintaining control of the aircraft. The aircraft was slow flight-checked in the landing configuration for controllability while a Navy S-3A joined on the struggling Hercules for a visual inspection. Twenty-degree flaps were selected for the approach and landing. A PAR was flown with shallow turns to final without further incident. The vibrations continued through the gradual descent all the way to touchdown.

Postflight inspection revealed that a bolt had backed out of the assembly connecting the pushrod to the trim tab. The cause of this disconnect is under investigation.

Effective crew coordination, timely reactions, thorough trouble-shooting and knowledge of NATOPS were all instrumental in the safe return of Raider 47.

Capt. Gregory Bass, USMC
VMFA-314

Two F/A-18s, Knight 16 and Knight 17, arrived at merge plot with two USAF F-15s. Knight 16, flown by Capt. Bass, commenced a hard right turn to convert on one of the F-15s. Rolling out of his turn and beginning a left-hand climbing turn, closing for a weapons solution, Capt. Bass heard a bang, followed shortly by illumination of both fire warning lights. For the next 20 seconds, cockpit voice alerts and warning tones sounded, resulting in a very confusing emergency situation. Capt. Bass transmitted a "knock-it-off" call and began to analyze the situation.

Though NATOPS procedures for the F/A-18 do not specifically address a dual engine fire, he was able to methodically determine that the actual emergency was in the right engine. Shutdown procedures for the right engine were initiated and Knight 16 diverted to the Roswell Industrial Air Center, New Mexico. The right fire light extinguished, but the left engine fire light remained illuminated, though engine parameters appeared normal.

A post-mishap investigation revealed that a high pressure compressor failure had occurred in the right engine. A titanium fire which followed burned through both inner and outer engine casings and the centerline keel and firewall. Fire and heat radiation damage existed in both engine bays which accounted for the dual fire lights.

Cdr. Jim Reaghard
Ltjg. Brian Glackin
VAW-116

Cdr. Reaghard (pilot), commanding officer of VAW-116, and Ltjg. Glackin (copilot) were on an E-2C OPDEC mission northeast of the Hawaiian Op-Area in support of READIEX 87-3B. Two hours into the flight, they noticed an occasional fluctuation of the starboard reduction gear oil pressure. When the fluctuations became more frequent, the crew saw an excessive amount of oil on the right nacelle. Shortly afterward, the RIGHT OIL LOW light illuminated.

The engine was secured immediately. At this time the E-2 was 450 miles from the USS *Ranger* (CV-61). When within communication range of Honolulu Center and FACSFAC, Ltjg. Glackin declared an emergency. Nearly three hours after securing the right engine, the E-2 arrived for a CASE I straight-in approach to the ship. Cdr. Reaghard flew an OK underline, no comment, two-wire pass.

Postflight inspection revealed a cracked oil fitting. The quick decision to shut down the engine prevented further loss of oil and extensive damage to the engine. ◄

Capt. Gregory Bass

Cdr. Jim Reaghard (left), Ltjg. Brian Glackin (right).

The Aircraft Preflight

Last of a Dying Breed?

By LCdr. Larry Meyers

DURING the past 13 years, I've seen a steady trend toward less efficient aircraft preflights. As increases in aircraft sophistication and reliability continue to keep the overall mishap rate down, one factor — pilot error — seems to keep making the headlines. For some reason, macho and preflight don't seem to go hand in hand. As total experience and time in type increase, it appears that our enthusiastic and careful preflight inspections go by the wayside. Where do we lose it?

From our first days of primary flight training, we are taught the necessity and responsibility of conducting comprehensive and professional inspections before manning up our trusty steeds. NATOPS PCL procedures are ingrained. Dreaded instructor pilots check and monitor our preflight proficiency with unfair, unplanned snares. We view the preflight not necessarily in terms of survival, but as a possible chance to excel and demonstrate our keen knowledge.

As we progress through training, the FRS and finally "across the street" to the real fleet, we leave behind the fear of getting a **below average** for a lousy preflight. As we gain experience and become more at ease in our new environment, other factors come into play during our preflights. There is no longer someone standing at our back looking over our shoulder. It gets too cold or rainy; there is not enough time because the brief took too long, or more often, we stopped to pound down a "breakfast burrito with chili" prior to walking.

Det mentality pervades: Kick the tires, light the fires. We don't want to get our gloves or hands dirty. That's what the final checkers are there for. Maybe we have heard too many snide ready room comments such as, "What are you going to do — buy that thing?" or "I hate it when he has to touch everything rather than just look at it!" I mean, how

many "Wait for you at the hold short" comments can you take?

Ask yourself a few quick questions. How many recent mishaps have been directly or indirectly related to inadequate pilot preflight? When was the last time you saw anyone actually using a checklist as a preflight guide? How long has it been since you got airborne with the uncomfortable feeling that you overlooked something during preflight? How often have you reviewed NATOPS preflight procedures and wondered where the heck an item was because you had never seen it? Have you ever listened in on other preflight discussions thinking, "Gee, I never knew to look at that"?

Well, guys and gals, a review of the mishap summaries of the past few years is a mite embarrassing and points out that maybe we pilots are not being quite as professional as we were initially trained to be. We have been rightly accused of causing some pretty stupid and costly mishaps by hurried or abbreviated preflights. Many have occurred during away-from-home detachments and cross-country flights where our good judgment and attention to detail tend to vacate us.

The following are samples of actual incidents related to our lack of preflight prowess:

- A whole TFOA program instituted to report and prevent items raining down from our aircraft on the unsuspecting public.
- Numerous engines FODed by improperly installed refueling caps, doors and panels.
- Aircraft lost due to unsecured fuel caps and fuel ingestion from external fuel tanks.
- Whole panels lost during takeoff rolls.
- Aircraft getting airborne with parts and panels missing or unfastened.
- Accidental firing of unpreflighted guns.
- Accidental jettison of pods, ordnance and tanks.
- Blown tires and runway departures after landing with the emergency brake handle pulled in the "soloized" aft cockpit.
- Ejection seats that failed to function. (pins not removed)
- Lost Sidewinders and nitrogen bottles from LAU-7 launchers.

The list goes on. It doesn't take a rocket scientist or brain surgeon to figure out that the old pilots just aren't doing the job right. Let's get back to basics and reverse this unflattering and needless trend before we waste any more national assets. Care and thoroughness do not take extra time, only a renewed effort towards diligence and professionalism. The next time somebody snickers and asks you if you are going to buy that aircraft, just nod and say that you'd rather buy that aircraft than the farm. ◄

LCdr. Meyers flies the F/A-18 with VFA-113.

A-4 With Afterburner

By LCdr. Craig A. Grover

Occasionally, while getting drilled by some Tomcat driver on a DACT (Dissimilar Air Combat Training) mission, I've recalled my old Crusader days when a slight outboard movement of the throttle provided an extra 6,000 pounds of thrust. Give me an afterburner in the Skyhawk and I'd really show them some thrust to weight. Well, one day, my dream came true — only it turned out to be a nightmare.

My copilot and I were flying as a bogey wingman on a multiplane DACT event on the Yuma Tactical Aircrew Combat Training System (TACTS) range. While orbiting at 10,000 feet after our first engagement, the copilot heard an odd engine noise, scanned the instruments and noted the oil pressure at zero. He told me and recommended an immediate turn toward MCAS Yuma. Looking at my own gauge and confirming the problem, I complied quickly.

During the turn toward Yuma, we divided responsibilities. The copilot handled communications, coordination with a chase aircraft, and reviewed the

pocket checklist (PCL). I set the power at 88 percent per NATOPS, changed the squawk to emergency, and pointed the aircraft toward the approach end of the duty parallel runways, 03 Left and Right. My copilot switched to approach, declared an emergency, and read off — over the ICS—the procedures for oil pressure failure and precautionary approach.

During our *long* trip to Yuma (10 minutes), our oil pressure remained at zero; the oil quantity remained normal. As you might expect, the engine began making angry complaints including a grinding noise and moderate to severe vibrations. It took no time to figure out we were in deep trouble. With a successful landing on the duty runway in serious doubt, we decided to risk a tail wind landing — winds 350 at 10 — and proceeded to the closest set of suitable runways, 21 Left and Right.

Fifteen miles east of Yuma, we encountered slight rpm fluctuations and severe vibrating, grinding, moaning, groaning, shuddering and a few other things. I'm not denying that some of the shaking may have originated from *inside* the cockpit. We discussed the possibility of ejection, switched to Tower and continued on our way.

About 10-12 miles from the runway, the engine rpm started slowly rolling back. The chase aircraft reported sparks coming from the tailpipe. What a sickening feeling — like the world was about to fall out from under us. However, the engine reluctantly continued to provide thrust, so we pressed on. We modified the normal precautionary approach glide slope (1.5 miles per 1,000 feet of altitude) in favor of a steeper, faster approach. We were coming in offset about 60 degrees from the runway heading, so when we got to the airfield, we would still have a 60-degree turn to make. There was a shorter 6,000-foot runway straight ahead that we had not considered, but fate would later eliminate that option. We were planning to land on the longest runway, but keeping our options open, we requested both 21 Left and Right.

As we started down, we were definitely high — about a 1,000-foot-per-mile glide slope. Since I did not want to give up any airspeed before its time, I dropped the gear at 250 knots (25 knots above NATOPS gear speed). Normally I would feel guilty about such an act, but at the time, I did not want to risk any additional load on the bearings that the speed brakes or a pull-up maneuver might cause. Initially, I used three-quarter flaps to control glide slope. However, I raised them back up as engine rpm decreased through 80 percent. Our airspeed stabilized at about 210 knots.

The engine was decelerating more rapidly now. As rpm decayed to 30 percent, I pulled the hydraulic flight control disconnect handle. The disconnect was normal and provided stiff, but usable controls. With adrenaline levels high, I had no trouble moving the stick.

There comes a time when an engine decides enough is enough. As rpm decreased through 70 percent, the fuel control couldn't decide whether to provide fuel flow for the 80 percent throttle setting or the 70 percent engine speed; so, it did both. Large fuel flow fluctuations and engine surges resulted. The copilot, not missing a thing, called for manual fuel. I was out of ideas, so I complied. When switching to manual, I did not match throttle position with rpm as NATOPS requires because of another NATOPS consideration: leaving the throttle set following oil-pressure failure. Is this one of those gray areas?

Well, at last my dream came true—an A-4 with an afterburner. Manual fuel gave us stabilized engine performance for a few precious seconds, at the expense of an extremely overtemped engine. Ground observers stated there was an orange glow coming from our tailpipe, like an afterburner. But stabilized engine performance and slightly increased thrust gave us enough energy to make the airfield. After a few seconds, the engine rpm started rolling back again, but at a reduced rate and without surges.

Although we were coming down over farmland as we approached the field, we noted air station buildings ahead and to the left, and civilian air terminal buildings ahead and to the right. We were in a box. Ejecting now meant endangering people on the ground. What happened to the ejection option that the precautionary approach is supposed to preserve? We still had airspeed to make the left runway and maybe the right. However, the engine was still rolling back *and,* if rpm dropped below 20 percent, we would lose hydraulics. *And* if we lost hydraulics, we would lose flight controls. *And* if we lost flight controls, we would have no control over where the aircraft landed — or crashed. So, we discussed disconnecting the hydraulics — which meant flying with cables only.

Then came the airliner. Out of nowhere, a civilian jet rolled onto the concrete directly in front of us. The airliner had just landed on the 6,000-foot cross runway that I mentioned earlier. Now ejection really looked bad. With flying speed still at 210 knots, we decided to press on a little further, if not to land, then at least to turn and avoid the airliner. Suddenly, *no generator!* As advertised, the generator dropped off the line at 45 percent engine rpm. The copilot deployed the RAT, and electrical power was restored. The engine was decelerating more rapidly now. As rpm decayed to 30 percent, I pulled the hydraulic flight control disconnect handle. The disconnect was normal and provided stiff, but usable controls. With adrenaline levels high, I had no trouble moving the stick.

The engine continued its rollback, and the right runway no longer looked attainable at our steep descent angle. The left runway still looked good, so we decided to try for it. With 10 percent rpm and flames out of the tailpipe as reported by the chase plane (we saw no fire warning light), we began a 45-degree angle of bank turn for 21 Left. I had both hands on the stick for control, and the copilot — God bless him — had both hands on the lower handle just in case I couldn't maintain control.

Unfortunately, here at the most critical part of our approach, we could not use the ICS without freeing up a much-needed hand. Had I been smart, I would

have selected "hot-mike" early in the approach.

As we came around for the final turn, I felt a wing drop, and I temporarily took out some of the angle of bank, which produced a sizable overshoot. Having had enough flying for the day, and not wishing to negotiate another airborne turn with a seized engine and manual flight controls, I set the aircraft down at 200 knots on the asphalt just off the right side of 21 Left. We rolled on the runway at 190 knots and 5 percent rpm, with 5,000 feet of runway remaining. I got on the brakes, shut off the throttle and started fumbling with the manual fuel shutoff lever. Seeing the longfield gear signs, the copilot called for, and lowered, the hook. Then, to our dismay, we looked forward and saw the longfield arresting gear derigged. Time for more brakes.

Then, out of nowhere, up popped a carrier-type barricade at the end of the runway. The barricade had been installed one week ago for the F-21s used by VMFT-401, but I had not known about it. At first, it gave me a warm feeling to know we were being looked after. Then, I decided we'd really have a warm feeling if we couldn't get the canopy up or off while on fire in the barricade. It was then I found out how strong my feet really were.

We blew both tires 80 feet from the end of the runway and stopped three feet from the barricade. My attempt at manually pumping up the canopy was too slow for the backseater who was sitting much closer to the smoking engine; he blew the canopy. I knew they put that jettison handle there for a reason. It sure works quicker than a hand pump.

After the copilot reminded me to safe the ejection seat with the head knocker, we quickly egressed. The copilot beat me out by several seconds. For a few minutes we watched the Yuma crash crew do an outstanding job of putting out brake and engine fires. Then we were carted off to the dispensary to donate blood (seven tubes) and suffer the various indignities of a complete physical.

Aircraft at departure end of RW 21L (MCAS Yuma).

Postmishap inspection revealed heat damage to the tail section, including the LOX compartment and rudder cables. The engine turbine section had been cut through by a turbine wheel and was being held together by exterior lines. The tailpipe had collapsed and was burned through in several places. Obviously, the aircraft had been close to exploding. Fortunately, the heat shield had done its job and contained the spread of fire in flight.

The cause? One loose, un-safety-wired bolt in the engine accessory case had worked its way past a screen, had been sucked into the scavenge side of the main oil pump, had jammed an impeller, and had sheered the pump spline, causing instantaneous loss of oil pressure.

Would I make the same choices in a future situation? Will I eject when the engine gives its first signs of imminent failure? I hope I never find out. What would you do? I've heard it said, "Know when to go, then go." But the ejection decision may not be that clear-cut. There may be people on the ground to consider. You may be feet dry over hostile territory. Or maybe, as in our case, the engine holds together just long enough to sucker you into attempting a landing. Know your options. But, most importantly, don't let our success lure you into a box from which you can't escape. Remember, ejections are more than 90 percent successful. Can you say the same for attempts at landing without an engine?

Lessons learned

- Landing with a seized engine is no fun.
- NATOPS does not cover every contingency. Some compound emergencies may have conflicting guidance.
- An A-4 can still fly with a seized engine, but not very far.
- A-4 disconnected flight controls work, but are uncomfortable in a steep turn (such as the abeam precautionary approach profile). Following engine seizure, manual controls could be used to reach a clear area or to effect a pull-up prior to ejection.
- A-4 manual fuel works fine, but matching throttle with rpm prior to switching to manual is important. If that cannot be done, expect heat damage.
- I've heard jet engines can run 30 minutes without oil. Maybe so, but don't count on it.
- Know your NATOPS procedures. Know all your options.
- If you are not certain which runway you will land on during an emergency, ask Tower to clear all the runways.
- Use "hot-mike" when things get hot.
- Two crew members are better than one for handling compound emergencies as long as they work together. Define your roles.
- A-4s don't need afterburners, except maybe in our case.

Finally, I want to thank my copilot, LCdr. Scott Beaton, for staying with me. ◄

LCdr. Grover flew RF-8Gs with VFP-63 and VFP-306. He is the aviation safety officer for VC-13, a Naval Air Reserve adversary squadron at NAS Miramar, Calif.

Few can dispute the outstanding airmanship shown by LCdrs. Grover and Beaton in this extremely close call. Inevitably, though, this incident will bring up age-old questions: Should the crew have stayed with the aircraft or should they have ejected? Did they violate NATOPS by failing to eject? Navy policy concerning flameout approaches and aircraft on fire is straightforward: Flameout approaches will not be flown unless it is impossible or impracticable to eject, and if there is a verified fire in an aircraft, eject. This mishap fell into a gray area that wasn't covered by either of these policies. The engine lost power but did not flame out. Sparks came out of the engine, but there was no indication of a sustained fire until just prior to touchdown. In situations such as this that are not covered clearly by NATOPS, we have to rely on the pilot to exercise his best judgment based on his experience and unique perspective. The pilot must make an instantaneous decision, and it's not fair to second-guess him based on extensive retrospective analysis in the calm of the ready room or safety desk. This in no way contradicts or changes official Navy policy. If the engine has failed and can't be restarted, eject. If your aircraft has a verified fire, eject. If you have a situation in between these extremes, use your best judgment. That's what separates naval aviators from robots. — Ed.

J52-P6B turbine damage following engine seizure during manual fuel operation.

LETTERS

Re: Staying Alive in the CV Bureaucracy (June '87)

FPO San Francisco, Calif. — I thought "Staying Alive in the CV Bureaucracy," the article by Lt. Niel L. Golightly was excellent and thought-provoking. However, I take issue with one statement he makes: "that only the captain of the ship can authorize a bingo."

OPNAVINST 3710.7L clearly states: "In the absence of direct orders from higher authority cognizant of the mission, responsibility for starting or continuing a mission with respect to weather or any other condition affecting safety of the aircraft rests with the pilot in command . . . It shall not be transferred . . . except as required by emergency, operational necessity or as directed by the commanding officer of the unit to which the aircraft is attached."

This passage tells me if I think a bingo is appropriate, I initiate it; and if the OTC or captain disagree, they specifically call me back. Obviously, we should try to give early warning of an impending divert/bingo situation, but if the situation warrants it — do it! Too often we have gotten aircrews in extremis awaiting a decision from a paralysis-ridden bureaucracy.

Cdr. S.A. Hazelrigg
Executive Officer
VA-45

Re: Mishap Loses, Helicopter Safety (Dec '87)

Monterey, Calif. — I enjoyed your special publication, "Helicopter Safety," and I am anxious to both read and contribute to future editions.

I would like to note a discrepancy in the front inside cover illustration concerning the 1986 Class A mishap losses. There were three UH-1 mishaps and one AH-1 mishap in 1986.

I believe the culprit is that statistical data lumps all H-1 aircraft together; however, it should be made clear that no community was immune from Class A mishaps during CY 86.

Capt. Robert E. Joslin, USMC
Aviation Safety Programs
Naval Postgraduate School

•We checked and Capt. Joslin is right. Our computer lumps all H-1 variants together. Thanks — Ed.

Hydroplaning

Meridan, Miss. — We're required to do a training lecture on hydroplaning. I remember reading an article in Approach on this subject and would like to have a copy.

Ens. Doug Beal
VT-19, CTW-1

• The article was "Hazards of Winter Operations II." It contained a section on hydroplaning and appeared in the January 1986 issue. We have sent a copy to Ens. Beal. The authors were Cdr. Joseph F. Towers and Porter J. Perkins. Cdr. Towers has another article on hydroplaning in the April issue of Approach. — Ed.

"Roger, Air Force four, niner, seven, zero. Here's the weather advisory for that area: If you can see Mt. Ranier, it's going to rain. If you cannot see Mt. Ranier, it's raining."

Re: Flashlight Handy But Hot (Dec '87)

Andrews AFB, Md. — We receive Approach magazine and think it's top-notch.

A letter in the December issue described a flashlight that had overheated severely. We've had some similar problems, and here's what we've learned about batteries.

Alkaline batteries and nickel-cadmium rechargeable batteries are very powerful when fully charged. These batteries should never be intermixed with each other or with standard carbon-zinc or heavy-duty carbon-chloride batteries. To do so causes the alkaline or ni-cad to go into a rapid-discharge state and overheat to the point of actually melting down. The same can occur if a fully charged ni-cad or new alkaline is used with a partially depleted mate — the "good" battery overheats and begins to melt down trying to boost the weaker battery. That is what may have happened in your December issue letter.

We briefed our people to dispose of any old, loose batteries or to get a battery tester and check their charge state. This advice applies to all battery-operated devices, lights, toys, etc. Any device could be subjected to the overheating problem, and a child could be seriously hurt if a toy was involved.

Maj. Robert M. Silver, USAF
Chief, Flight Safety

WELCOME ABOARD ARMY

Army aviation units are now receiving Approach magazine on automatic distribution from the U.S. Army Aviation Center, Fort Rucker, AL 36362-5363. This is being administered by Mr. Bill Carter, Code CSSN-M, Autovon 558-4806/3014, Commercial 205-255-4806/3014.

Naval Aviation Acronyms

Fridley, Minn. — I am receiving your publication and enjoying it very much; however, I am having trouble with all the acronyms used in Approach. Would you please send me the key (if available) to the more common acronyms used?

Mark Gannucci
1332 Hillcrest Dr., NE

• We're sorry, but no all-inclusive list of acronyms exists for what in many cases is standard terminology in naval aviation. We generally try to explain any that are a little obscure. A book that might help is the Dictionary of Naval Abbreviations (DICNAVAB), probably available at your library. — Ed.

Approach in Demand

Shaw AFB, S.C. — We like Approach. We are an Air Force H-3 squadron and find Approach a useful, informative magazine. Unfortunately, we can't always obtain it.

Approach gets distributed to us through the 507 TAIRCW. Sometimes we get it, sometimes we don't. It's not practical to use the library copy. In this squadron pertinent articles are cut out and become mandatory reading. But that requires our own issue. Can we have each issue sent directly to our squadron?

Capt. Georges B. Kleinbaum, USAF
Flight Safety Officer
703D Tactical Air Support Squadron (TAC)

• You can receive Approach, but not directly from us. Approach is available to all Air Force units through the Air Force Inspection and Safety Center by written request. The Address is AFISC/SEPP, Norton AFB, CA 92409. Questions? Call Mrs. Virginia Hendrix at Autovon 876-5675. Approach is similarly available for distribution throughout the Coast Guard from: USCG, Department of Transportation, Distribution Operations, 400 Seventh St., S.W., Washington, DC 20590. — Ed.

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1987 CNO Safety Awards

CNO "Readiness Through Safety" Award

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VR-30
VP-1
HS-2
HSL-37
HSL-43*
VX-5

COMNAVAIRLANT
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VFA-106
VA-83
VA-34
HSL-42
HM-12*
VP-56
HS-3
VQ-4
VS-30
VAW-125
VC-10
HSL-36

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*Second consecutive year
**Fourth consecutive year
***Fifth consecutive year

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VT-28

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HMM-166
VMFA-323**
HMH-463
HML-369
VMGR-152

CG FMFLANT
HMM-264
VMA-231
VMFA-251
VMAQ-2

Admiral James H. Flatley Memorial Awards

CV/CVN — USS *Constellation* (CV-64)
LPH/LHA — USS *Belleau Wood* (LHA-3)

Admiral James S. Russell "Naval Aviation Flight Safety" Award

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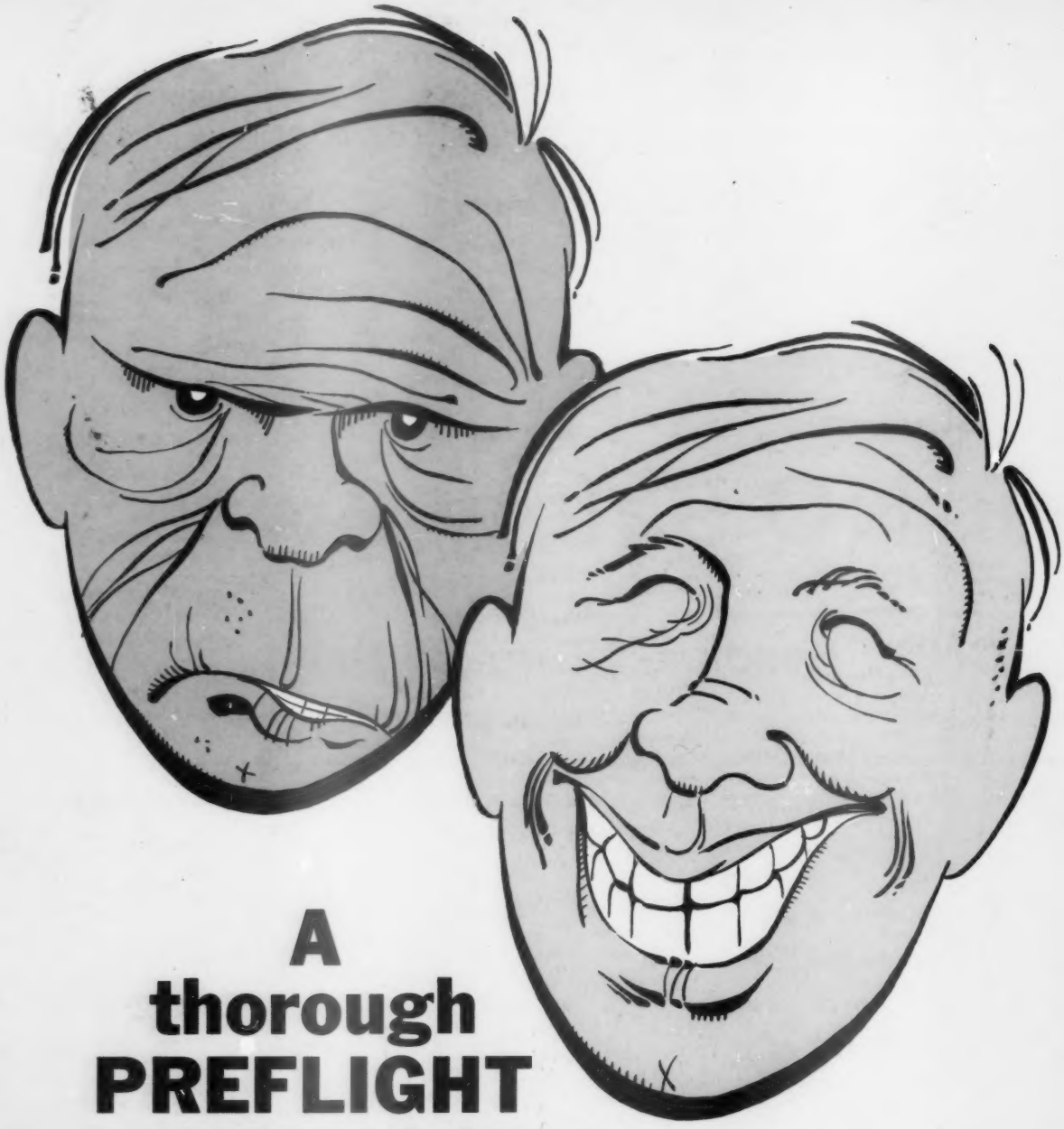

A thorough PREFLIGHT prevents mishaps and makes the safety officer smile.

Smile, safety officer, smile.